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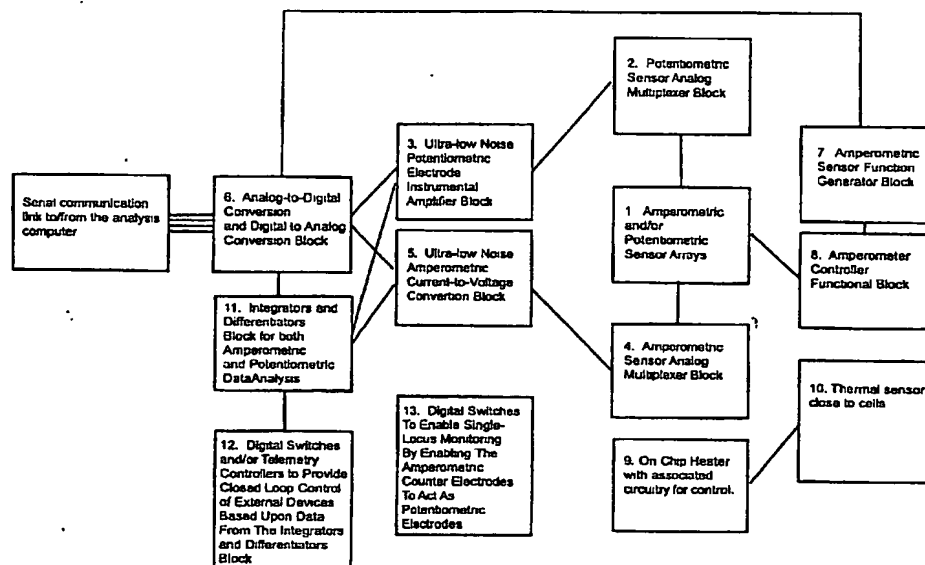
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(54) Title: MICROSCOPIC MULTI-SITE SENSOR ARRAY WITH INTEGRATED CONTROL AND ANALYSIS CIRCUITRY



(57) Abstract: On-chip closed loop control circuitry comprising an amperometric sensing system, a potentiometric sensing system, at least one differentiator connected to said amperometric and potentiometric sensing systems, at least one integrator connected to said amperometric and potentiometric sensing systems, and noise reduction means. A recording device and chip for measuring neurochemical and neuroelectrical activity in tissue culture having at least one potentiometric electrode, at least one amperometric electrode interconnected to the potentiometric electrode, wherein the electrodes are located on the same device, and circuitry for eliminating frequency noise. Also provided is software for controlling the chip.

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